dispersedly loaded on carbon particle) and, if necessary, PTFE suspension is applied onto the polymer film to form a film of the paste (in general, having a thickness of 3 μm to 30 μm). Then, heating and drying are performed. Then, the solid electrolyte solution is applied and allowed to be impregnated from a position above the film of the paste. Thus, the conventional catalyst layer can be obtained. If necessary, these above-mentioned conventional catalyst layers are joined to the ion-exchange membrane. After that, if necessary, the gas diffusion layer including electro-conductive porous substrate is joined to the surface of the catalyst layer. Then, the solution (c) in which the polymer (a) is dissolved in the solvent (b) is contained in the above-mentioned conventional catalyst layer. Then, the polymer (a) is separated from the solution (c) by phase inversion process so that the catalyst layer including porous polymer for a fuel cell's electrode is obtained. For example, catalyst layer including the solution (c) is immersed into the non solvent (d) which is insoluble in polymer (a) and soluble in the solvent (b). Thus, the catalyst layer for a fuel cell's electrode can be obtained. Then, the polymer (a) is phase-separated from the solution (c) so that the electrode for a fuel cell is obtained by solvent extraction method. As an alternative to this, the solution (c) in which the polymer (a) is dissolved in the solvent (b) is contained by coating or immersion. Then, the non solvent (d) which is insoluble in polymer (a) and soluble in the solvent (b) is substituted for the polymer (a). Thus, the electrode for a fuel cell can be obtained by solvent extraction method.

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As can be understood from Fig. 1, the cells (A and B) according to the present invention

exhibited higher output voltages at each current density as compared with the conventional cells C and D. In particular, the cell A structured such that porous PVdF was provided for the inside of the pores in the catalyst layer and the surface of the same exhibited an output higher than that of the cell B. Since the electrode according to the present invention has the structure that the porous PVdF exhibiting high hydrophobicity was provided for the inside portions of the pores in the catalyst layer and/or the surface of the same, supply of hydrogen and oxygen as reactants to the deep portions of the electrode was enabled. Therefore, an active area of the catalyst layer was larger than that of the conventional catalyst layer. In particular, the cell A' having the structure that porous PVdF was provided for the inside portions of the pores of the catalyst layer, the surface of the same and inside of the carbon paper as the substrate, exhibited excellent characteristics.

IN THE CLAIMS:

Please enter the following amended claims:

1. (Twice Amended) An electrode for a fuel cell comprising: a catalyst layer and a porous polymer, wherein said catalyst layer contains a solid polymer electrolyte and catalyst particles.

2. (Amended) The electrode according to claim 1, wherein said porous polymer is provided for an inside portion of pores or/and surface of said catalyst layer.